Are mastery-avoidance achievement goals always detrimental? An adult development perspective

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DOI: https://doi.org/10.1007/s11031-015-9474-1

Are Mastery-Avoidance Achievement Goals Always Detrimental?

An Adult Development Perspective

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Revised & Resubmitted to Motivation & Emotion, November 2014

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We thank Monika Bieri and Juerg Graf for assistance in putting together the experimental materials. Financial support for this research was provided by a grant to Corwin Senko, while a Post-Doctoral researcher at the University of Zürich, from the Suzanne and Hans Biäsch Foundation for Applied Psychology.

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Abstract

Achievement goal research consistently reveals that mastery-avoidance goals (i.e., striving to avoid losses) are maladaptive, especially in comparison to mastery-approach goals (i.e., striving for gains). Nearly all of it has been done with children or young adults, however. Lifespan theories of motivation posit that people in late adulthood are more likely than young adults to strive toward maintenance and loss-prevention rather than gains, and also that they sometimes profit from pursuing those goals. Integrating the two approaches, this experiment compared young and older adults' experience and performance on a laboratory task when pursuing either mastery-approach or mastery-avoidance goals. Results show that young adults perceived the mastery-approach goal to be more attainable and therefore felt less pressure, enjoyed the task more, and performed better with it, whereas older adults showed this pattern with the mastery-avoidance goal. This matching effect replicates recent research on adult development and has broader implications for achievement goal theory and avoidance motivation in general.

Key words: Achievement goals, mastery-avoidance, gains, losses, adult age-differences

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An Adult Development Perspective

Achievement goal theory (Dweck, 1986; Nicholls, 1984) distinguishes two main types of goals often pursued in achievement situations: mastery goals, which focus on learning or developing one's ability, and performance goals, which instead focus on demonstrating one's ability by outperforming peers. Additionally, these goals separate into approach and avoidance forms (Elliot & McGregor, 2001; Pintrich, 2000). Mastery-approach goals entail striving to learn or improve, whereas mastery-avoidance goals entail striving to avoid failures to learn or decline in skill. Performance-approach goals entail striving to demonstrate better ability than others, whereas performance-avoidance goals entail striving to avoid demonstrating worse ability than others. For mastery and performance goals alike, the avoidance form is theorized to produce more detrimental effects than the approach form. This paper examines that premise for mastery goals. In particular, incorporating lifespan perspectives on motivation, it tests whether mastery-avoidance goals are maladaptive for both young and older adults.

Ample research has compared mastery-approach goals and the two performance goals (for reviews, see Elliot & Moller, 2003; Payne, Youngcourt, & Beaubein, 2007; Senko, Hulleman, & Harackiewicz, 2011). Altogether, it shows that mastery-approach (MAPP) goals produce various benefits (e.g., interest, self-regulation, cooperativeness), whereas performance-avoidance (PAVO) goals produce uniformly maladaptive outcomes (e.g., anxiety, poor task strategies, low achievement). Performance-approach (PAPP) goals instead produce a mix of effects, some negative (e.g., cheating) and others positive (e.g., effort and high achievement).

Mastery-Avoidance Goal Research

The research on mastery-avoidance (MAVO) goals has been more limited in scope. MAVO goals represent a hybrid of positive (mastery) and negative (avoidant) motivational forces. In principle, they could produce either positive or negative outcomes depending on which of the two forces is most salient (Elliot, 1999). Given the greater power of aversive stimuli to command attention (Baumeister, Bratslavsky, Finenauer, & Vohs, 2001), however, it is likely that the avoidance element is often most salient in MAVO goals. In line with this, the research shows mostly undesirable effects for these goals, often on par with PAVO goals. For example, MAVO goals tend to be associated with maladaptive forms of perfectionism (Stoeber, Uphill, & Hotham, 2009), anxiety during task engagement (Elliot & McGregor, 2001; Putwain & Daniels, 2010), procrastination (Howell & Watson, 2007) and ineffective task strategies (Elliot & McGregor, 2001; Howell & Watson, 2007), and, according to recent meta-analyses, low task interest and poor achievement (Baranik, Stanley, Bynum, & Lance, 2010; Hulleman, Schrager, Bodmann, & Harackiewicz, 2010).

The prior work on MAVO goals is arguably limited in two ways, however. One is that nearly all of it relies on correlations between participants' self-reported goal pursuit and the outcome measures, thus weakening causal interpretations. Another is that most studies have defined mastery goals in terms of striving to learn as much as possible (MAPP) or to avoid a failure to learn (MAVO). There is another form of mastery goals that is equally valid yet understudied: striving to improve (MAPP) in skill level or personal performance level or to avoid a decline (MAVO) in skill or performance levels. The first type of mastery goal defines competence with task-based standards, the second type with intrapersonal standards. Both types of MAPP goals have a long history in achievement goal theory, dating back to Ames's (1992) seminal integration of variants to the theory. But the bulk of research on MAPP goals since the theory's early years has excluded the intrapersonal type of mastery goal. That is beginning to change, as evidenced by an increase in studies using experimental

manipulations (e.g., Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007) or measures (e.g., Elliot, Murayama, & Pekrun, 2011; Majdar, Kaplan, & Weinstock, 2011) of mastery goals that focus specifically on improvement.

To date, only one published study has tested MAVO goals experimentally and used the intrapersonal type of mastery goal (Van Yperen, Elliot, & Anseel, 2009). Consistent with the survey-based research, that study found that striving to avoid a decline in performance (MAVO) caused worse performance than striving to improve (MAPP) or a no-goal control group, both for college students doing a verbal skills test and for young and middle-aged workers doing a managerial task. The present study expands this work by comparing MAVO goal effects for young versus older adults.

An Adult Lifespan Motivation Analysis of Mastery-Avoidance Goals

Virtually all research on achievement goals has tested traditional student, worker, or athlete populations, all ranging from youth to middle adulthood. Perhaps not coincidentally, MAVO goals in these studies typically are endorsed less than the other achievement goals. This low incidence rate is unsurprising. MAVO goals have always been theorized to be common only in select settings and populations, such as older adults (i.e., 65 years and older) (Elliot, 1999). Indeed, in the lone test of older adults' achievement goals, de Lange, Van Yperen, Van der Heijden, and Bal (2010) found that MAVO goals were their most prevalent achievement goal in a late-career work context.

Research on personal goals is consistent with this (e.g., Ebner, Freund, & Baltes, 2006). Personal goals orient toward either gaining something valued (cf. MAPP goals) such as money or health, maintaining something valued, or preventing the loss of something valued (cf. MAVO goals). Compared to younger adults, older adults' personal goals orient more towards maintaining a current state or preventing loss (Ebner et al., 2006; Ogilvie,

Rose, & Heppern, 2001; Pennington & Scott, 2012). That life goals research and de Lange et al.'s (2010) study together suggest that MAVO goals become common in late adulthood.

Lifespan theories account well for this age-related shift in goals. One systematic feature of aging is that younger adults typically experience gains in resources (e.g., cognitive and physical abilities, money, social networks), whereas older adults expect and typically encounter more losses (Baltes, Lindenberger, & Staudinger, 2006; Mustafic & Freund, 2013). That is, the ratio of gains to losses in resources becomes smaller in late adulthood. This decline prods older adults to orient their personal *goals* more toward maintaining and preserving their existing resources rather than acquiring new ones. Indeed, older adults not only pursue maintenance and loss-prevention goals, but they also are more likely than younger adults to pursue goals in life domains (e.g., health) in which they expect decline (Heckhausen, 1997).

What are the consequences of this motivational shift towards loss-prevention in late adulthood? Three articles, each including multiple studies, have directly examined this (Ebner et al., 2006; Freund, 2006; Weiss, Sczesny, & Freund, 2014). Their findings suggest a "matching effect," with older adults experiencing much more positive outcomes than younger adults when pursuing maintenance or loss-prevention goals.[1] In one study, Weiss et al. (2014) showed that older adults, but not younger adults, are more likely to endorse collective actions (e.g., a strike, demonstrations) when they protect against personal losses than when they promise personal gains. In another set of studies, Ebner et al. (2006) found that loss-prevention goals predicted poor subjective well-being among young adults but was unrelated to older adults' well-being; a parallel pattern showed that maintenance goals had null impact on young adults' well-being but predicted positive well-being for older adults. Freund (2006) found similar effects in several laboratory experiments that inspired the present research. She gave young and older adults multiple trials of a sensorimotor task. In the first

session, their goal was to get as good as possible on the task (cf. MAPP goal). In the second session, they were confronted with a handicap that increased the task's difficulty, and were instructed to overcome the handicap and prevent a decline in performance (cf. MAVO goal). Young adults persisted longer when given the improvement goal than the loss-prevention goal, but older adults showed the exact opposite pattern. Those studies suggest that MAVO goals may be toxic for young adults but neutral, and even positive in some respects, for older adults. It must be acknowledged, however, that none of those studies directly tested mastery goals per se and that Freund's (2006) experiments examined how participants responded after experiencing an *actual* loss in functioning. It remains to be seen if the mere induction of a MAPP or MAVO goal is sufficient to trigger the same motivational effects. Moreover, it is unknown if these age-differential effects extend to important outcomes besides task persistence. This issue becomes especially important because persistence, the outcome measure in Freund's (2006) studies, can reflect either positive, autonomous motivation (i.e., interest) or negative, controlled motivation (i.e., internal pressure) (Ryan, Koestner, & Deci, 1991). Additional process and outcome measures can provide clarity.

The present study fills these two voids. It provides the second experimental test of MAVO goals, and the first of the potential age-differential effects of these goals. It also includes several process and outcome measures, alongside task persistence (cf. Freund, 2006), to chart how these MAVO goal effects unfold during task engagement. To this end, we used Senko and Harackiewicz's (2005) process model. They proposed that initial judgments of an achievement goal's difficulty can trigger multiple motivational effects downstream: achievement goals that appear harder to attain are more likely to generate performance pressure that, in turn, can undermine task interest, perceived competence, and performance. The present study applied this logic to MAPP versus MAVO goals. Although the two mastery goals are almost identical in objective difficulty in most contexts, the

avoidant nature of the MAVO goal may make it appear more difficult, arouse more anxiety and pressure, and deplete more cognitive resources (Carvery & Scheier, 1998; Elliot & Sheldon, 1997; Roskes, De Dreu, & Nijstad, 2012), at least for younger adults due to their relative inexperience and distaste for pursuing avoidance goals. If true, MAVO goals, in comparison to MAPP goals, should undermine young adults' interest, perceived competence, and task performance – all stemming from their perceptions of the MAVO goal's greater difficulty and the performance pressure this arouses. Older adults, on the other hand, should experience either superior – or at least not worse – interest, perceived competence, and task performance when pursuing MAVO goals rather than MAPP goals. Again, this would stem entirely from finding MAVO goals as easy, or perhaps even easier, than MAPP goals.

Hypotheses

Duplicating prior research on MAVO goals and avoidance goals more generally (e.g., Coats, Janoff-Bulman, & Alpert, 1996; Elliot & Sheldon, 1997; Friedman & Förster, 2001), we expected that younger adults' task experience and performance are less positive when pursuing a MAVO goal than a MAPP goal. Older adults, by contrast, should show a similar or more positive pattern of findings when pursuing a MAVO goal than a MAPP goal. These age-differential effects will be triggered by judgments about how difficult the two goals appear: the harder the goal seems, the more negative the subsequent experience and outcomes.

Specifically, MAVO goals will be judged harder than MAPP goals by young adults, but not by older adults (Hypothesis 1). Initial judgments of difficulty will positively predict performance pressure while task engaged (Hypothesis 2). Performance pressure will, in turn, negatively predict task interest, perceived competence, and task performance (Hypotheses 3a-c). Finally, the goal difficulty → performance pressure process will provide an indirect

pathway (i.e., sequential mediation) through which MAVO goals will undermine the three outcomes for young adults but not for older adults (Hypotheses 4a-c).

In addition, replicating Freund (2006), MAVO goals will predict low task persistence for young adults but high persistence for older adults (Hypothesis 5). We had no hypothesis about how task persistence aligns with the other expected effects, however, because, as explained earlier, task persistence could reflect either positive regulation or negative regulation (Ryan et al., 1991). In other words, its relation to goal difficulty and performance pressure could be either negative or positive. Nevertheless, we tested if goal difficulty judgments and performance pressure together mediate the expected interaction effect on task persistence, and also if task persistence influences participants' interest, perceived competence, and task performance.

Method

Design & Participants

This experiment used a 2 (mastery goal: MAPP vs. MAVO) X 2 (age: young vs. older adults) between-subjects design.

Participants were 63 younger adults (18 - 32 years, $M = 23.67$, $SD = 3.45$) and 71 older adults (65 - 83 years, $M = 70.35$, $SD = 4.53$) in Switzerland. They were recruited through advertisements in local newspapers, Internet postings, and flyers distributed in local shops. Gender was evenly represented in each age group (young: 45% men; older: 49% men). The sample was well-educated overall: most young adults were university students (89%), and over half of older adults (53%) had earned university or advanced trade school degrees. Most participants from both age groups were not employed full-time – young adults due to school and older adults due to retirement (91%). Prior to starting the study, they completed single-item self-report measures (1 = very poor, 6 = very good) of their current physical health and happiness. Each group felt both healthy (young M =4.93; older $M = 5.24$, $t = 2.07$,

$p < .05$) and happy (young M =4.66; older $M = 5.27$, $t = 3.77$, $p < .01$), although the older participants reported higher levels on both measures.

Procedure & Measures

Participants played the word puzzle game Boggle, the objective of which is to find as many words as possible in a 4 by 4 matrix of letters by using adjacent letters. We chose this word-finding task for three reasons. One is simply that it is fun to play and conducive to mastery goal manipulations (Senko & Harackiewicz, 2005). Another is that success on it does not require a cautious approach; any potential benefits of MAVO goals cannot be due to this task rewarding avoidance motivation over approach motivation (Higgins, 1997). Another is that vocabulary shows high stability into old age (see Baltes et al., 2006); older participants most likely have not experienced losses in this domain of functioning. This was important in the present context because, different to the Freund (2006) experiment, we wanted to test as stringently as possible the "pure" effect of goal framing (i.e., *without* the experience of a loss in actual capability to do the task).

The task was computerized (using MediaLab; Jarvis, 2004) and participants had to type all the words they identified. After reading the rules for the task, participants tried one practice puzzle (90 sec). They then learned several strategies for finding words and then completed two more practice puzzles (90 sec each). Their total performance on the first pair of practice puzzles served as an indicator of *baseline ability*, a necessary control variable because older adults might be less proficient at this type of activity.

Participants then were told that the upcoming "test puzzle" would be similar in difficulty to the third practice puzzle. They were randomly assigned by the program to receive either a MAPP goal or a MAVO goal for it. In the MAPP condition, they were asked to *try to do better* than on the third practice puzzle. In the MAVO condition, they were asked to *try to avoid doing worse* than on the third practice puzzle. At this juncture, participants in

both goal conditions knew neither how many words they found in the practice puzzle nor, therefore, how many words found in the test puzzle would signal goal attainment. Withholding such feedback not only allowed standardization but also, crucially, kept the achievement goal at its natural broad "purpose" level rather than become converted into a specific "target" goal (Locke & Latham, 2002). They then completed an open-ended manipulation check, as well as measures of *perceived goal difficulty* ("It will be difficult to achieve this goal", "The goal is a tough goal", "It will take a lot of effort to achieve this goal", "I am confident I will successfully meet the goal" [reversed], & "I expect to achieve the goal rather easily" [reversed]) and *competence valuation* ("It is important to me to do well on the puzzles"; Harackiewicz & Elliot, 1993), the latter to assess if young and older adults differ in their desire to perform well while pursuing the assigned goals (cf. goal commitment)

Participants then completed the test puzzle and were allowed to take as long as they wished on it. Their *task persistence* (minutes) on it was covertly recorded as a behavioral measure of effort, and the number of correct words found served as the *task performance* measure. After the test puzzle, participants reported the *performance pressure* experienced during the puzzle ("I felt frustrated with how I was doing on the test puzzle", "I felt pressured to do well on the test puzzle", "I thought a lot about the difficulty of the test puzzle", "I thought about how poorly I was doing on the test puzzle", "I felt confident that I was doing well on the test puzzle" [reversed], & "I felt good about how I was doing on the test puzzle" [reversed]).

They then received veridical feedback about the number of correct words found on the third practice puzzle and on the test puzzle, plus a statement about whether they attained their goal. Unsurprisingly, given unlimited time to do the test puzzle, all participants did attain their assigned mastery goal. They then completed measures tapping their *task interest* ("I enjoy playing Boggle," "Boggle is fun," "Boggle is an interesting game," "Boggle is a

waste of time" [reversed], & "Boggle is a boring activity" [reversed]) and *perceived competence* ("I think I did well on the Boggle puzzles" & "I am satisfied with my overall performance compared to others"), and then were debriefed.

The task, procedure, and measures are based largely on Senko and Harackiewicz (2005). All measures used 1 ("Strongly Disagree") to 5 ("Strongly Agree") scales and, as shown in Table 1, had acceptable internal reliability (αs $\geq$ .70).

Results

Of the original 134 participants, data from 18 (3 young adults, 15 older adults) were omitted due to their misunderstanding of (a) the goal manipulation, as indicated by failed goal manipulation checks (n = 10), or (b) the Boggle activity, as indicated by scoring zero points on practice puzzles (n = 8). These errors did not vary between goal conditions, χ^2 = 0.77, p = .38. The final sample for analyses included 61 young adults and 55 older adults.

We tested the hypotheses with two sets of multiple regression analyses.[2] The first examined the direct effects of the goal and age variables on all process and outcome variables, and the second tested the hypothesized indirect effects. Table 1 provides the correlations among all measures, and Table 2 provides the means for each condition.

Direct Effects

The regression model for all analyses included the main effects of Age (-1 = young, +1 = older) and Goal (-1 = MAVO, + 1 = MAPP), the interaction of Goal X Age, and, as a covariate, participants' baseline ability at playing the Boggle activity. Additionally, because participants were given unlimited time to do the test puzzle, the task persistence measure was highly variable (M = 18.7 minutes, SD = 11.4 minutes) and likely to influence task performance and perhaps interest and perceived competence as well. It was therefore included in the regression model for all analyses of task interest, perceived competence, and performance. Table 3 provides the results, the highlights of which are described next.

The Goal x Age interaction is the most relevant because it tests two hypotheses. We expected it to directly affect perceived goal difficulty (Hypothesis 1) and task persistence (Hypothesis 5), such that young adults, but not older adults, judge the MAVO goal more difficult than the MAPP goal and persist less when pursuing the MAVO goal. In support of Hypothesis 1, this interaction did predict goal difficulty judgments ($\beta = .34$), the immediate process variable in the hypothesized model. Simple slope analyses (Aiken & West, 1991) of the effect on goal difficulty reveal that young adults perceived the MAVO goal as more difficult than the MAPP goal, $\beta = -.27$, $p = .02$, whereas older adults considered the MAVO goal easier than the MAPP goal, $\beta = .43$, $p < .001$. In partial support of Hypothesis 5, the Goal x Age interaction also marginally predicted task persistence ($\beta = -.16$, $p = .06$). According to simple slope analyses, young adults persisted longer when pursuing the MAPP goal than the MAVO goal, $\beta = .23$, $p = .05$, while older adults persisted similarly long when pursuing either goal, $\beta = -.11$, $p = .40$. Note that these effect cannot be attributed to older adults simply caring more when pursuing the MAVO goal than the MAPP goal: competence valuation was high in all conditions ($M = 4.6$) and did not vary between groups.

The Goal x Age interaction also significantly predicted performance pressure ($\beta = .19$) and showed a (non-significant) trend for perceived competence ($\beta = -.17$, $p = .08$). Slope analyses for each, however, show only non-significant trends for young adults to experience greater pressure and less perceived competence with the MAVO goal, while older adults show the opposite non-significant trend (see Table 2 for condition means). Note, though, that neither of these effects is critical to the hypothesized model, and the effect on perceived competence should be considered with extra caution due to its marginal significance.

Finally, the Goal and Age terms each had significant main effects. The Goal term predicted task performance ($\beta = .17$), with participants finding more correct words when pursuing a MAPP goal than a MAVO goal. Also, older adults, compared to younger adults,

persisted longer (β = .44), enjoyed the task more (β = .52), and felt more competent (β = .27), yet also performed worse (β = -.24). Of these, the age link to perceived competence should be treated cautiously, however, because it is seems to be due to statistical suppression caused by the high correlation between age and baseline ability (r = -.64).[3]

Indirect Effects

The above analyses provide initial support of our process model. Young adults judged the MAVO goal as harder than the MAPP goal, while older adults judged it easier. As well, goal difficulty or performance pressure correlated with the three outcome measures: interest, perceived competence, and performance (see Table 2). To test the rest of the model, a second set of regression analyses used Hayes's (2012) Process macro for SPSS to examine if perceived goal difficulty and performance pressure provide a pathway through which the Goal X Age interaction shapes those outcomes downstream. Specifically, using "model 4" of the macro, we tested if perceived goal difficulty provides a significant simple indirect pathway for the Goal x Age interaction to influence performance pressure (Hypothesis 2). Then, using "model 6", we tested if performance pressure predicts each of the outcome variables (Hypotheses 3a-c) and if goal difficulty and performance pressure together provide a *sequential* indirect path from the interaction effect to task interest, perceived competence, and task performance (Hypotheses 4a-c). Table 4 provides the direct and indirect effects of the Goal X Age interaction effect on each outcome; each outcome includes separate indirect effects for goal difficulty alone, performance pressure alone, and, most relevant to the hypotheses, the two together in sequence. All indirect effects (B) are bootstrap estimates (based on 1,000 trials) with bias-corrected and accelerated 95% confidence intervals.

These analyses showed a pattern consistent with mediation. Initial perceived goal difficulty predicted greater performance pressure while doing the test puzzle (β = .37, p < .001). This link was strong enough to provide an indirect path for the Goal X Age interaction

to impact performance pressure, B = .13, 95% CI [.05, .26], thus supporting Hypothesis 2. Young adults judged the MAVO goal harder than the MAPP goal and therefore felt more performance pressure when pursuing it, while the opposite was true for older adults. Performance pressure, in turn, predicted lower levels of task interest (β = -.24, p = .01), perceived competence (β = -.52, p < .001), and task performance (β = -.12, p = .04), thus supporting Hypotheses 3a-c. Furthermore, in support of Hypotheses 4a-c, separate analyses of the three outcomes showed that the goal difficulty → performance pressure sequence provided small but significant indirect effects of the Goal X Age interaction on task interest, B = -.03, 95% CI [-.08, -.01], perceived competence, B = -.06, 95% CI [-.13, -.02], and task performance, B = -.02, 95% CI [-.04, -.01]. Due to their perceived difficulty and the resultant performance pressure aroused, MAVO goals indirectly hampered young adults' interest, perceived competence, and performance. But for the same reasons, the MAVO goal actually aided these outcomes for older adults.

Task persistence proved to be an exception to this pattern. Although, as the Direct Effects analyses (Table 3) showed, persistence was marginally predicted by the Goal X Age interaction effect and also strongly predicted high task performance, it did not predict the other two outcomes, interest and perceived competence. It also was unrelated to the process measures, goal difficulty perceptions (r = .07) and performance pressure (r = -.13). Thus, the task persistence findings offer little insight into why the goal manipulation had different indirect effects on young and older adults' interest, perceived competence, and performance.

In sum, although the basic process triggered by goal difficulty perceptions was identical for young and older adults alike, the goal that triggered this process differed for the two age groups: the MAVO goal did so for young adults while the MAPP goal did for older adults.[4] Figure 1 summarizes the key direct effects of the predictor and process variables in an inclusive path model.

Discussion

The findings matched our general hypothesis. Young adults perceived MAVO goals to be harder to attain than MAPP goals. This perception had enduring effects: the heightened goal difficulty intensified their feelings of performance pressure and, therefore, undermined their task interest, perceived competence, and performance when pursuing the MAVO goal. This pattern conceptually replicates the research on avoidance goals in general (e.g., Coats et al., 1996; Elliot & Sheldon, 1997) and for MAVO goals in particular (Van Yperen et al., 2009; for a meta-analytic review, see Baranik et al., 2010) – nearly all of which has relied on children or young adult samples.

What about older adults? As hypothesized, they experienced MAVO goal pursuit quite differently. Older adults perceived the MAVO goal to be more attainable than the MAPP goal, and as a result, experienced less pressure, enjoyed the activity more, felt more competent at it, and performed better when pursuing the MAVO goal. Thus, although MAPP goals directly caused higher task performance than MAVO goals for *all* participants, as shown by the main effect of goal condition, this effect was attenuated for older adults due to the greater pressure that MAPP goals caused them. This finding complements the lone prior study of MAVO goals across the adult lifespan (de Lange et al., 2009). That study showed that MAVO goals are common in work contexts during late adulthood. Ours, the first controlled experimental test of MAVO goals for older adults, suggests that these goals may also be less harmful, and perhaps even beneficial, during that life phase.

Limitations and Alternative Interpretations

This study examined age-differential effects of MAVO goals by comparing them to MAPP goals. Lacking a no-goal control condition, it is impossible to conclusively determine whether those effects are driven by the MAPP goal, the MAVO goal, or both. On the other hand, given that initial interest evokes MAPP goal pursuit (Harackiewicz et al., 2008), it may

be impossible to create a *pure* no-goal condition for an activity that, like the present one, is inherently interesting and invites mastery strivings. Additionally, lifespan theories of motivation suggest a stronger role for MAVO goals in driving the effects found here (Ebner et al., 2006; Freund, 2006; Weiss et al., 2014). In light of this, we consider the MAPP goal a suitable if not flawless control condition. This experiment also excluded performance goals, of course, but there is little theoretical rationale to expect their effects to vary between these two age groups (Freund, 2006).

Two other limitations of this study, and of most lifespan motivation research, must be acknowledged. First, it used a cross-sectional design. It is impossible to account for historical and contextual factors that, alongside developmental processes, contribute to the age effects shown here. Second, it used an extreme-group approach rather than sample numerous age groups. This was done in part for practical reasons but also because, based on prior charting of lifespan processes (Ebner et al., 2006; Ogilvie et al., 2001), we expected middle-aged groups to map onto a motivational midpoint between young adults and older adults. Future research should verify this assumption for MAVO versus MAPP goals, however.

It is important to consider alternative interpretations of our findings. The most viable, in our opinion, concerns how MAVO goals are interpreted by the two age groups. MAVO goals represent a hybrid of good (mastery) and bad (avoidant) regulation, and therefore are typically assumed to provide effects that fall somewhere between those of MAPP and PAVO (performance avoidance) goals, the exact location depending on the relative salience of the two elements (Elliot, 2005). Do older adults focus more than young adults on the mastery element? Older adults, unlike young adults, do judge their performance-maintenance against their general expectation for decline, and therefore liken maintenance and loss-prevention to a gain (Mustafic & Freund, 2013). Perhaps, then, the older adults in this study reframed the MAVO goal as a MAPP goal. This interpretation appeals at first blush because it can account

well for why older and young adults experience MAVO goals differently: older adults might focus more on the mastery element and construe the goal adaptively, whereas young adults focus more on the avoidance element and construe the goal maladaptively. It falls short, however, because it also implies that older adults experience the two mastery goals identically, and likewise for approach and avoidance motivation more generally. The findings show otherwise: older adults found the MAVO goal *less* difficult than the MAPP goal, and, as a result, experienced less pressure and eventually had higher task interest, perceived competence, and task performance too. They also persisted marginally more with the MAVO goal, matching Freund's (2006) work. This contrasts the 'reframing' interpretation of our findings.

Nevertheless, it would be fruitful to examine how lifespan processes influence how people construe MAVO goals and avoidance goals more generally (Ciani & Sheldon, 2010; Urdan & Mestas, 2006). One intriguing possibility is that young and older adults summon different mindsets about ability when pursuing MAVO goals. Several studies show that young adults view ability as fixed during MAVO goal pursuit (Bong, 2009; Elliot & McGregor, 2011; Howell & Buro, 2009). They strive to avoid decline or learning failures while also believing that ability is largely fixed. This is a toxic combination. It is no wonder MAVO goals produce aversive experiences for them. By contrast, perhaps older adults, being accustomed to preventing declines, view ability as malleable during MAVO goal pursuit. This mindset, which promotes tenacity and strategy optimization, may make MAVO goals seem easier, thus facilitating a positive experience. This is mere speculation, of course. It remains for future research to test.

Theoretical Implications

The present study bridges achievement goal theory with lifespan theories of motivation. In so doing, it advances each. Regarding the former, these findings add

perspective to ongoing discussions about the contribution of MAVO goals to achievement goal theory. As noted earlier, most studies show that these goals are pursued less often than the other three achievement goals. This low incidence rate is likely one of several reasons why the field has not yet fully accepted MAVO goals (for fuller discussion, see Hulleman & Senko, 2010, and Madjar et al., 2011) and why they have not yet been incorporated into several prominent measures of achievement goals (e.g., Duda & Nicholls, 1992; Midgley et al., 2000;Vandewalle, 1997).

MAVO goals were never theorized to be widely prevalent, however. They are instead assumed to be common only in specialized circumstances. For example, when introducing these goals to the field, Elliot (1999) posited that they would be most common among perfectionists or aging samples keen to maintain their high performance levels in the face of natural decline. The research bears this out for both groups (de Lange et al., 2009; Stoeber et al., 2009). We suspect that there are also occasions where MAVO goals become prevalent even among traditional student populations: for example, during large upward transitions where students worry about their capacity to master the material, such as the first semester of college or when taking a notoriously difficult class. Studies are needed to test this possibility and, more generally, to chart when MAVO goals are common versus infrequent, and their effects in those circumstances.

One also wonders if the patterns observed here generalize across different types of mastery goals. The current study used mastery goals with *intrapersonal* standards: improving on prior performance (MAPP) or avoiding decline in performance (MAVO). We did this in part to mirror the prior experimental tests of MAVO goals (Van Yperen et al., 2009) and, more importantly, because that type of mastery goal maps well onto the motivational constructs (i.e., gain versus loss-prevention) featured in lifespan theorizing (Baltes et al., 2006). Yet mastery goals can also use *task-based* standards that focus on meeting task

demands: MAPP goals target learning as much as possible, while MAVO goals target avoiding failures to learn. It has long been assumed that the intrapersonal and task-based types of mastery goals trigger similar effects, but now theorists are beginning to question this assumption (Elliot et al., 2011; Madjar et al., 2011). We expect many studies will compare the two types of mastery goals in coming years, and we encourage researchers to include MAVO goals when testing populations most inclined to pursue these goals.

It is also important to map the various processes through which MAVO goals may affect task performance and interest. The present study is one of the few to attempt this. Its findings substantiate Senko and colleagues' contention that goal difficulty judgments can play a pivotal role in understanding achievement goal effects (Senko et al., 2011; see also, Blaga & Van Yperen, 2006). Their research shows not only that goal difficulty judgments shape task experience, but also that these goal difficulty judgments can easily be altered. For example, increasing the perceived difficulty of a MAPP goal reduces willingness to pursue this goal (Senko & Hulleman, 2013) and diminishes the goal's benefits to task interest for those who do pursue it (Senko & Harackiewicz, 2005). Presumably, the adverse impact of MAVO (or PAVO) goals on young adults could also be altered through interventions that either (a) reduce their perceived difficulty or (b) blunt the threat that may arise from high goal difficulty (e.g., value affirmations; Harackiewicz et al., 2014).

These findings also contribute to lifespan theories of motivation. One salient feature of aging is the decline of personal resources (e.g., abilities, strength, and health) during late adulthood (Baltes et al., 2006). As a consequence, older adults adjust their personal goals in ways that maximize their control (Heckhausen, 2010). One type of goal adjustment is to strive increasingly toward the maintenance and prevention of loss in these personal resources, rather than only toward acquiring more resources (Ebner et al., 2006; Heckhausen, 1997; Pennington & Scott, 2012). Not only are maintenance and loss-prevention goals more

common in late adulthood, but they also might promote more positive outcomes in this life phase (Ebner et al., 2006; Freund, 2006; Mustafic & Freund, 2012). The present experiment demonstrates this as well, insofar as MAVO goals overlap maintenance and loss-prevention goals. Our findings are particularly impressive given that the word-finding activity used in this study offers no obvious advantage to older participants or for avoidance goals. After all, older participants were unlikely to have much experience with it, and success on the task does not require the type of cautious, error-reducing strategy often associated with avoidance motivation (Higgins, 1997). Nevertheless, the MAVO goal appears to have provided a positive match for them even on this task.

This "matching effect" for late adulthood and MAVO goals aligns more generally with theorizing about the fit between avoidance motivation and cultural or personality variables. For example, avoidance motivation appears to be more common and also less harmful in collectivistic cultures than individualistic cultures (e.g., for a review, see Hamamura & Heine, 2008; for a counterpoint perspective, see Elliot et al., 2012), and also among neurotics and defensive pessimists than optimists (Norem & Illingworth, 1993; Tamir, 2005). A parallel pattern seems possible for late adulthood (cf. Lockwood, Chasteen, & Wong, 2005). Indeed, in contrast to earlier theorizing that avoidance motivation is always controlling and pressure-filled (Carver & Scheier, 2000), older adults not only pursue loss-prevention goals but also report high autonomy and subjective well-being (Sheldon & Kasser, 2001). Perhaps their avoidance goals are pursued autonomously and promote – or at least do not harm – their subjective well-being and quality of task engagement. This possibility fits recent theorizing on "goal complexes," which contends that any achievement goal, even avoidance-based ones, can be pursued for autonomous reasons and garner relatively positive outcomes (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, in press). The present findings offer circumstantial evidence, in that older adults, due to finding the MAVO goal

easy, felt low pressure and experienced several positive outcomes when pursuing this goal. More work is needed to further test this positive fit for avoidance motivation, and loss-prevention goals and MAVO goals in particular, in late adulthood.

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Footnotes

1. A matching effect for older adults pursuing MAVO goals could take a strong or weak form. The strong form would show *benefits* of MAVO goals, while the weaker form would show neutralized, non-toxic effects of MAVO goals. Either is plausible and would depart notably from the negative effects typical for young adults pursuing MAVO goals.

2. Despite the categorical nature of the goal and age variables, we chose multiple regression over ANCOVA because regression is better suited to fully test the various indirect effects. We chose regression over structural equation modeling due to our medium sample size and desire to explore all possible effects (Kline, 2005).

3. The same suppression effect was tested and ruled out in all other significant age or Goal X Age effects; each remains significant without baseline ability in the model.

4. Although there is little theoretical reason to expect it, it is plausible that age moderates the links between goal difficulty and performance pressure or between performance pressure and the outcomes. Supplemental analyses tested if age moderates these indirect paths (i.e., moderated mediation). It did not for any.

Table 1

Internal Reliability Coefficients and Zero-Order Correlations Among All Measures.

	1	2	3	4	5	6	7	8
1. Competence Valuation	--							
2. Perceived Goal Difficulty	.01	.76						
3. Performance Pressure	-.17	.28**	.71					
4. Perceived Competence	.34***	-.15	-.53***	.77				
5. Task Interest	.44***	.05	-.28**	.29**	.89			
6. Persistence (minutes)	.05	.07	-.13	.06	.24*	--		
7. Test Puzzle Performance	.14	-.27**	-.17	.17	.17	.54***	--	
8. Baseline Ability	.09	-.37***	.08	.01	-.08	-.27**	.39***	--
9. Age (+1 = Older, -1 = Young)	.07	.37***	-.14	.13	.37***	.42***	-.21*	-.65***

Notes. $N = 116$. Internal reliabilities (Cronhach's alpha) for multi-item self-report measures are provided on the diagonal.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2

Condition Means for all Process and Outcome Variables.

	Young Adults		Older Adults	
	MAVO Goals (n = 29)	MAPP Goals (n = 32)	MAVO Goals (n = 24)	MAPP Goals (n = 31)
Competence Valuation	4.55 (0.63)	4.59 (0.56)	4.58 (0.83)	4.61 (0.72)
Perceived Goal Difficulty	2.30 (0.62)	1.76 (0.59)	2.34 (0.97)	2.94 (0.58)
Performance Pressure	2.01 (0.62)	1.77 (0.59)	1.60 (0.51)	1.80 (0.57)
Task Persistence	11.73 (4.87)	16.52 (9.32)	25.08 (15.40)	22.58 (10.25)
Task Interest	4.18 (0.65)	4.33 (0.69)	4.73 (0.50)	4.74 (0.52)
Perceived Competence	3.84 (0.94)	4.14 (0.74)	4.29 (0.69)	4.13 (0.79)
Task Performance	29.79 (10.96)	36.86 (13.57)	26.71 (14.17)	28.87 (11.97)

Note. All self-report measures used 1 (“Strongly Disagree”) to 5 (“Strongly Agree”) scales.

Table 3

Regression Results for Direct Effects of Goal Condition and Age on All Process and Outcome Variables.

	Competence Valuation	Perceived Goal Difficulty	Performance Pressure	Task Persistence	Task Interest	Perceived Competence	Task Performance
Mastery Goal (+1 = MAPP, -1 = MAVO)	.04	.03	-.03	.06	.04	.06	.17*
Age (+1 = Older, -1 = Young)	.14	.19†	-.17	.44***	.52***	.27*	-.24**
Goal X Age	-.02	.34***	.19*	-.16†	-.07	-.17†	-.02
Baseline Ability	.19	-.28*	-.05	.04	.28*	.20	.45***
Task Persistence	--	--	--	--	.08	-.03	.74***
F:	0.58	10.97***	1.65	7.00***	5.35***	1.44	41.64***
R^2	.02	.28	.06	.20	.20	.06	.65

Notes: $N = 116$. Coefficients are standardized regression coefficients. † $p \leq .08$, * $p < .05$, ** $p < .01$, *** $p < .001$. Task persistence was excluded from regression models testing earlier process variables.

Table 4

Standardized Total, Direct, and Indirect Effects of the Goal X Age Interaction on all Process and Outcome Variables.

Dependent Variable	Mediator	Total Effect	Direct Effect	Indirect Effect	95% CI for Indirect Effect
Performance Pressure	Goal Difficulty	.19	.06	.13	[.05, .26]
Task Persistence	Goal Difficulty	-.16	-.15	-.01	[-.09, .08]
	Performance Pressure			.00	[-.04, .02]
	Goal Difficulty → Performance Pressure			.00	[-.04, .01]
Task Interest	Goal Difficulty	-.07	-.04	.01	[-.07, .11]
	Performance Pressure			-.01	[-.06, .02]
	Goal Difficulty → Performance Pressure			-.03	[-.08, -.01]
Perceived Competence	Goal Difficulty	-.17	-.08	.00	[-.06, .07]
	Performance Pressure			-.03	[-.12, .06]
	Goal Difficulty → Performance Pressure			-.06	[-.13, -.02]
Task Performance	Goal Difficulty	-.02	.02	-.02	[-.07, .04]
	Performance Pressure			.00	[-.04, .01]
	Goal Difficulty → Performance Pressure			-.02	[-.04, -.01]

Notes: Indirect effects for the Goal Difficulty → Performance Pressure link reflect the hypothesized sequential mediation. Significant indirect paths indicated by 95% confidence intervals (CI) excluding .00.

Figure 1. Path model summarizing direct effects (standardized regression coefficients) of the main predictor and process variables. Key effects are highlighted with thick path lines. The Goal X Age interaction effect on perceived goal difficulty is represented by the separate simple slop coefficients given for older and young adults. They provide the goal manipulation's effect separately for each age group. All other pathways reflect main effects. Baseline ability and all non-significant paths are omitted for visual simplicity, as is the Age path to perceived competence due to it resulting from statistical suppression.